



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,625	09/20/2001	Horst Berneth	Mo-6696 LeA 35,619	8241

34947 7590 06/20/2005

LANXESS CORPORATION
111 RIDC PARK WEST DRIVE
PITTSBURGH, PA 15275-1112

EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,625

Applicant(s)

BERNETH ET AL.

Examiner

Martin J. Angebranndt

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1756

1. The response of the applicant has been read and given careful consideration. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, "the formula (IS)" is **undefined (ie. What/where is the formula ?)**. It does not appear in claim 4. Also claim 4 upon which claim 12 depends has been cancelled.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1756

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3,5 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Umehara et al. '979.

Umehara et al. '979 in example 4 teach a phthalocyanine compound, which is spin coated, provided with a reflective layer and a UV cured protective layer.

The examiner holds that the recording layer is inherently able to be recorded upon using at least one wavelength in the range of 360-460 nm. The examiner holds that the data recorded in the medium using the laser of the example cited can be formed using a laser operating in the 360-460 nm wavelength and the these spots would undistinguishable. The examiner notes that claims 10-11 are to the recorded article and that while using the shorter wavelength allows smaller spot sizes to be formed at the same NA, the claims are not limited to bit recorded at any particular NA or necessarily below the size able to be recorded at longer wavelengths.

The applicant argues that the medium cited cannot be used at a wavelength in range 360-460 nm focusing on the phthalocyanine dye used in the example. The examiner points out that the medium may be used between 400 and 440 nm (4/35) and notes that while the reference focuses on the absorption of the other dyes (azo dye). The language of the claims requires that the **medium** be useful at this wavelength, not that the phthalocyanine dye absorb in this range. The examiner also points to the fact that the Soret band absorption is inherent to the

Art Unit: 1756

phthalocyanine dyes. See Iwamura et al. '437 and Whalley, M., "Cojugated Marcocycles. Part XXXII. * Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts.", J. Chem. Soc., pt 1. (1961) pp. 866-869. which provide a discussion of the Soret band absorptions pf phthalocyanine dyes. The applicant may provide data showing that the phthalocyanine dyes bounded by the claims do not use the Soret band for the absorption. The assertion that no phthalocyanine dyes are used in example 4 is quite simply without merit on its face. The claims are not limited to a particular format and the examiner takes the position that the the medium inherently can be recorded using **at least one wavelength in the 400-440 nm range**. The examiner also holds the position that the phthalocyanine dye used in the cited example has a Soret band absorption in the 360-460 nm range. As long as the absorption for the laser wavelength is present in the dye layer, it inherently can be recorded on and read using that wavelength and it is photosensitive in the absorption region of the dye(s). It is in the wavelength ranges where the dye(s) doe not absorb, which the medium is not recordable. It may be readable due to the difference in the optical thickness (phase shift) between the recorded and unrecorded areas. The rejection stands.

8. The examiner notes that the conclusions drawn are the result and not merely a probability. The claims directed to the recorded optical media do not describe a particular laser spot size, but merely recite only one of the optical parameters, which are required to describe the laser spot size. The laser spot size is proportional to λ/NA . Clearly for the requirement of the claims to be limited to a certain spot size, both the wavelength (λ) and the numerical aperture (NA) need to specified in the claims. The applicant is directed to sections [0004-0005] of the prepub of the instant specification, which supports the examiner's position. The applicant could

Art Unit: 1756

do this by limiting the claims to a particular NA as well, such as the NA of 0.65 appearing in example 1. Another alternative is to require a groove with a pitch, which is below the resolution achievable at longer wavelengths. The examiner notes that example 1 uses a pitch of about 1 microns, which is below the pitch of CDs (1.6 microns), but not that used for DVDs (0.74 microns). The groove width is also fairly small and would affect the wavelengths, which may be used with the recording medium. If the applicant is attempting to limit the claims to a high capacity disk, the rightmost structure shown in section [0078] of the prepub might be incorporated into the claims. This structure, where the reflective layer is provided between the dye layer and the substrate require the laser to be incident from the side of the medium opposite the substrate side. With protective layers of approximately 10-177 microns in thickness, this can be used with near field recording techniques (see applicants's co-pending application 10/101792). Unfortunately, the instant specification does not seem to describe this thickness of the protective layers or what is considered thin, so there may be issues with new matter should the applicant attempt to limit the claims in this manner. Currently, most of the prior art correspond to the CD embodiment of section [0078] and example 1, where the laser light is incident on the dye layer from the substrate side, due to the presence of the reflective layer atop the dye layer. **Bloom et al. GB 2066489 is the only reference applied where the reflective layer is between the recording layer and the substrate** The examiner notes that **JP 59-177743 may also be relevant to claims requiring the near field structure.** The applicant cannot very well argue that the dyes do not absorb in the 360-460 nm range, when the examples of the specification use these same dyes with GaN laser operative at 405 nm (see example 1) and the specification specifically describes the Soret band [0011]. These positions are without on

Art Unit: 1756

their face and incongruent with the applicant's own specification. The examiner also points to the teachings of Iwamura et al. '437 and Whalley, M., "Cojugated Marcocycles. Part XXXII.* Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts.", J. Chem. Soc., pt 1. (1961) pp. 866-869. The examiner again points out that there are no claims directed to the process of recording and that the mark size in the recorded media is not specified. The examiner also notes that legally "comprising" as recited in line 1 of claim 1 is held to "open" meaning that the claims do not exclude other elements and so cannot legally be construed as being limited to a single recording layer. The examiner urges the applicant to start making more substansive amendments to exclude at least some of the prior art applied. The rejection stands.

9. Claims 1-3,5 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kimura et al. '962.

Kimura et al. '962 in example 1 teach an optical recording medium using phthalocyanine compounds (o) or (p), which are spin coated. Example 3 uses a phthalocyanine compound (Q), which is spin coated, provided with a reflective layer and a UV cured protective layer.

The examiner holds that the recording layer is inherently able to be recorded upon using at least one wavelength in the range of 360-460 nm. The examiner holds that the data recorded in the medium using the laser of the example cited can be formed using a laser operating in the 360-460 nm wavelength and the these spots would undistinguishable. The examiner notes that claims 10-11 are to the recorded article and that while using the shorter wavelength allows smaller spot sizes to be formed at the same NA, the claims are not limited to bit recorded at any particular NA or necessarily below the size able to be recorded at longer wavelengths.

Art Unit: 1756

The examiner also points to the fact that the Soret band absorption is inherent to the phthalocyanine dyes. See Miyamoto et al. JP 11-138993 (figure 2), Iwamura et al. '437 and Whalley, M., "Cojugated Macrocycles. Part XXXII. * Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts.", J. Chem. Soc., pt 1. (1961) pp. 866-869. which provide a discussion of the Soret band absorptions of phthalocyanine dyes. The applicant may provide data showing that the phthalocyanine dyes bounded by the claims do not use the Soret band for the absorption. The claims are not limited to a particular format and the examiner takes the position that the medium inherently can be recorded using **at least one wavelength in the 400-440 nm range**. The examiner also holds the position that the phthalocyanine dye used in the cited example has a Soret band absorption in the 360-460 nm range. As long as the absorption for the laser wavelength is present in the dye layer, it inherently can be recorded on and read using that wavelength and it is photosensitive in the absorption region of the dye(s). It is in the wavelength ranges where the dye(s) do not absorb, which the medium is not recordable. It may be readable due to the difference in the optical thickness (phase shift) between the recorded and unrecorded areas. The examiner notes that the phthalocyanine dyes o and p used in example 1 are similar to those disclosed in the instant application and use of hydroxyl moieties and the axial ligands is recited in the instant specification [0024 in prepub] and the halogen and alkoxy substituents on the phenyl rings are embraced by the disclosure of the instant specification [0025 in prepub]. The rejection stands.

In addition to the basis provided above, the examiner notes that X may be hydroxyl (-OH) and $R^3 - R^6$ may be alkoxy (including fluorinated alkoxy) and halogens (such as Cl), so the

Art Unit: 1756

examiner is unsure why the applicant asserts that OSO_2R was deleted. The examiner also notes that the instant specification describes the addition of other dyes [0073]. The rejection stands.

10. Claims 1-3,5,6 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Takasu et al. JP 59-177743.

Example 1 uses an Al chloride coordinated phthalocyanine (CAS RN 14154-42-8) which is vapor deposited and coated with a reflective layer. (page 3/lower right hand column).

In addition to the above response, the examiner points out that **the compound used in example 1 of the reference is the same as used in example 1 of the instant specification.**

Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. The rejection stands.

11. Claims 1-3,5,6 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kondo et al. JP 01-030038.

The example uses an Al chloride coordinated phthalocyanine (CAS RN 14154-42-8) which is coated on a substrate and with a reflective layer. (page 2/lower right hand column).

In addition to the above response, the examiner points out that **the compound used in the example of the reference is the same as used in example 1 of the instant specification.**

Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. The rejection stands.

12. Claims 1-3,5,6 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Aoyangi et al. JP 01-050253.

Example 1 uses an Al chloride coordinated phthalocyanine (CAS RN 14154-42-8) which is spin coated with a PVA binder. (page 4/upper right hand column).

Art Unit: 1756

In addition to the above response, the examiner points out that **the compound used in example 1 of the reference is the same as used in example 1 of the instant specification.**

Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. The rejection stands.

13. Claims 1-3,5,6 and 8-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Bloom et al. GB 2066489.

Example 2 uses an chloroaluminum phthalocyanine (CAS RN 14154-42-8) which is vapor deposited on a gold reflective layer.

In addition to the above response, the examiner points out that **the compound used in example 2 of the reference is the same as used in example 1 of the instant specification.**

Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. The rejection stands.

14. Claims 1-3,5 and 7-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Miyamoto et al. JP 11-138993 (machine translation attached).

Example 2 uses a chlorosilicon phthalocyanine (CAS RN 13930-88-6) which is vapor deposited, provided with a silver reflective layer and a protective layer. Section [0075] describes examples 2-6 and indicates that example 2 uses (SiCl₂-Pc). Figures 2 discloses the absorption for the phthalocyanine compound in the 240-430 nm range as well as the 600-800 nm range. [0058]. The use of other coating methods including spin coating is disclosed [0038-0042,0045-0047]. The addition of binders and the like is disclosed. [0043-0044].

In addition to the above response, the examiner points out that **the compound used in example 2 of the reference is the same as used in example 2 of the instant specification.**

Art Unit: 1756

Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. This is supported by the teachings in figure 2. The rejection stands.

15. Claims 1-3,5 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. JP 11-138993.

It would have been obvious to one skilled in the art to use spin coating to allow the addition of a binders, rather than vapor deposition used in example 2 with a reasonable expectation of success based upon the disclosure of equivalence and the desirability of adding a binder.

The rejection stands for the reasons above without further comment as no further arguments were directed at this rejection beyond those addressed above.

16. Claims 1-3,5 and 7-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Tatsuzono et al. JP 04-185485.

Example 20 in the table on page 4 uses a chlorosilicon phthalocyanine (CAS RN 13930-88-6) which is vapor deposited.

In addition to the above response, the examiner points out that **the compound used in example 20 of the reference is the same as used in example 2 of the instant specification.** Clearly, the same compound would have the same chemical and optical properties, particularly with respect to the Soret band. The rejection stands.

17. Claims 1-3 and 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either of** Miyamoto et al. JP 11-138993, Tatsuzono et al. JP 04-185485, Bloom et al. GB

Art Unit: 1756

2066489, Aoyangi et al. JP 01-050253, Kondo et al. JP 01-030038 or Takasu et al. JP 59-177743, further in view of JP 64-011892.

JP 64-011892 teaches the use of alkoxy or aryloxy substituents directly in the central metal of phthalocyanines.

It would have been obvious to one skilled in the art to modify the inventions of **either of** Miyamoto et al. JP 11-138993, Tatsuzono et al. JP 04-185485, Bloom et al. GB 2066489, Aoyangi et al. JP 01-050253, Kondo et al. JP 01-030038 or Takasu et al. JP 59-177743 by using other ligands, such as the alkoxy and aryloxy ligands taught by JP 64-011892 in place of the halogen ligands with a reasonable expectation of gaining the increased sensitivity and absorption properties and preventing agglomeration and increased sensitivity.

The increased stability and resistance to agglomeration would be desirable irrespective of the wavelength used for recording. As discussed above, the inherent absorption properties provide the sensitivity of the medium and in the case of the phthalocyanine dyes, the Soret band provides this for shorter wavelengths. The rejection stands.

18. Claims 1-3, and 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either of** Miyamoto et al. JP 11-138993, Tatsuzono et al. JP 04-185485, Bloom et al. GB 2066489, Aoyangi et al. JP 01-050253, Kondo et al. JP 01-030038, Umehara et al. '979, Kimura et al. '962 or Takasu et al. JP 59-177743, further in view of Iwamura et al. '437 and Whalley, M., "Cojugated Macrocycles. Part XXXII.* Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts.", J. Chem. Soc., pt 1. (1961) pp. 866-869.

Art Unit: 1756

Iwamura et al. '437 teach that porphyrin compounds have a strong absorption between 400 and 500 nm in the Soret band. The use of this absorption band for high density recording is disclosed. (3/43-4/38)

Whalley, M., "Cojugated Marcocycles. Part XXXII. * Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts", J. Chem. Soc., pt 1. (1961) pp. 866-869 teaches the presence of strong absorptions in the 350 nm region. (page 867)

If it is found that the data marks formed using wavelengths in the 350-460 nm range inherently differ from those formed at longer wavelengths, the examiner further holds that it would have been obvious to modify the inventions of **either** of Miyamoto et al. JP 11-138993, Tatsuzono et al. JP 04-185485, Bloom et al. GB 2066489, Aoyangi et al. JP 01-050253, Kondo et al. JP 01-030038, Umehara et al. '979, Kimura et al. '962 or Takasu et al. JP 59-177743 by using shorter wavelengths, such as 400-460 nm, to increase the density of the data able to be recorded based upon the disclosure of the absorptions in the ca 350 nm range by Whalley, M., "Cojugated Marcocycles. Part XXXII. * Absorption Spectra of tetraazoporphyrins and phthalocyanines. Formation of pyridine salts", J. Chem. Soc., pt 1. (1961) pp. 866-869 and the disclosure that the shorter wavelength bands of porphyrin type compounds are known to be useful in shorter wavelength optical recording as taught by Iwamura et al. '437 and result in higher density recording.

The applicant is mistakenly fixated on the wavelength of the laser, when the absorption of the dyes is what is important. The 488 nm laser is an argon ion which also has emissions at 351.1, 363.8, 457.9 nm. The secondary reference further support the position of the examiner with respect to the Soret bands and their inherent absorption. The applicants argument seem to

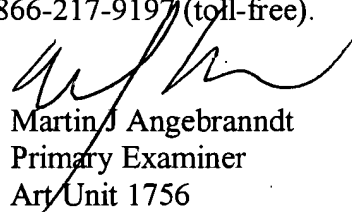
Art Unit: 1756

lean towards the applicant's discovering the Soret bands, which does not seem to be supported by the evidence in the record.

20 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J Angebranndt
Primary Examiner
Art Unit 1756

06/03/2004